

**Amendments to the Specification:**

Please replace paragraph beginning on page 5, line 9 with the following amended paragraph:

This object is achieved by a detector arrangement as claimed in claim 1, for detecting a frequency error between an input signal and a reference signal that includes first latch means for sampling a quadrature component of the reference signal based on the input signal to generate a first binary signal, second latch means for sampling an in-phase component of the reference signal based on the input signal to generate a second binary signal, and third latch means for sampling the first binary signal based on the second binary signal to generate a frequency error signal. This object may also be achieved by a charge pump circuit as claimed in claim 9 for use in a frequency detector arrangement that includes a differential input circuit having first and second differential branches, modulating means for modulating first and second current sources respectively arranged in the first and second differential branches, and control means for controlling a tail current of the differential input circuit in response to a frequency-locked state of the frequency detector arrangement.

This object may also be achieved by a detection method as claimed in claim 14 of detecting a frequency error between an input signal and a reference signal that includes the steps of sampling a quadrature component of the reference signal based on the input signal to generate a first binary signal, sampling an in-phase component of the reference signal based on the input signal to generate a second binary signal, and sampling the first binary signal based on the second binary signal to generate a frequency error signal. and This object may also be achieved by a control method as claimed in claim 15 of controlling a charge pump circuit used in a frequency detection arrangement that includes the steps of modulating first and second current sources respectively arranged in first and second differential branches of a differential input circuit of the charge pump circuit and controlling a tail current of the differential input circuit in response to a frequency-locked state of the frequency detector arrangement.

Please add a new paragraph beginning on page 8, line 22:

Fig. 26 is a process flow diagram of a method of controlling a charge pump circuit used in a frequency detection arrangement in accordance with an embodiment of the invention.

Please add a new paragraph beginning on page 21, line 14:

Fig. 26 is a process flow diagram of a method of controlling a charge pump circuit used in a frequency detection arrangement in accordance with an embodiment of the invention. At block 2602, first and second current sources respectively arranged in first and second differential branches of a differential input circuit of the charge pump circuit are modulated. At block 2604, a tail current of the differential input circuit is controlled in response to a frequency-locked state of the frequency detector arrangement.

Please replace the abstract with the amended abstract on the following page:

The present invention relates to a detector arrangement and a charge pump circuit for a recovery circuit recovering timing information for random data. The detector arrangement comprises a first latch means circuit for sampling a quadrature component of a reference signal based on an input signal, to generate a first binary signal, a second latch ~~means circuit~~ for sampling an in-phase component of the reference signal based on the input signal, to generate a second binary signal, and a third latch means circuit for sampling the first binary signal based on the second binary signal, to generate a frequency error signal. ~~Thus, a simple and fast detection circuitry can be achieved based on a digital implementation.~~ Furthermore, the charge pump circuit comprises a differential input circuit and a control means circuit for controlling a tail current of the differential input circuit in response to a frequency-locked state of frequency detector arrangement. ~~This provides the advantage that behavior of the charge pump circuit can alleviate extra ripple generated by the detector arrangement.~~